

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

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1. (Currently Amended) A carrier recovery system comprising:
an in-phase mixer for mixing an incoming signal with an in-phase reference signal
to produce an in-phase baseband signal;
a quadrature-phase mixer for mixing the incoming signal with a quadrature-phase
10 reference signal to produce a quadrature-phase baseband signal;
a DC detector for measuring a DC offset of the quadrature-phase baseband signal;
and
a frequency synthesizer for generating the in-phase reference signal and the
quadrature-phase reference signal according to the DC offset measured by the
15 DC detector;
wherein the DC detector comprises: ~~an adder, a delay unit and a multiplier.~~
an adder for adding the quadrature-phase baseband signal to a feedback signal
for producing an added value;
delay unit coupled to the adder for generating an output being the added value
20 delayed by a predetermined time; and
multiplier coupled to the delay unit is used for multiplying the output of the
delay unit by a predetermined coefficient to produce the feedback signal.

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2. (Original) The carrier recovery system of claim 1, wherein the carrier recover
system locks the quadrature-phase reference signal and the in-phase reference signal
to a selected channel in an Advanced Television Systems Committee (ATSC) digital
television (DTV) receiver.

3. (Original) The carrier recovery system of claim 1, wherein the incoming signal corresponds to a received vestigial sideband (VSB) signal.
4. (Original) The carrier recovery system of claim 1, wherein the frequency
5 synthesizer generates the in-phase reference signal and the quadrature-phase reference signal to minimize the DC offset of the quadrature-phase baseband signal.
5. (Original) The carrier recovery system of claim 1, wherein the quadrature-phase
10 mixer comprises a first low-pass filter receiving the quadrature-phase baseband signal for filtering out the high frequency term of the quadrature-phase baseband signal.
6. (Original) The carrier recovery system of claim 1, wherein the frequency
15 synthesizer comprises a second low-pass filter coupled to the DC detector and the frequency synthesizer.
7. (Original) The carrier recovery system of claim 6, wherein the second low-pass filter is a loop filter.
- 20 8. (Canceled)
9. (Previously Presented) The carrier recovery system of claim 1, wherein the predetermined coefficient is a value less than one.
- 25 10. (Original) The carrier recovery system of claim 1, wherein the in-phase mixer comprises a third low-pass filter receiving the in-phase baseband signal for filtering out a high frequency term of the in-phase baseband signal.

11. (Previously Presented) A method of carrier recovery comprising:
mixing an incoming signal with an in-phase reference signal to produce an in-phase
baseband signal;
mixing the incoming signal with a quadrature-phase reference signal to produce a
5 quadrature-phase baseband signal;
measuring a DC offset of the quadrature-phase baseband signal; and
generating the in-phase reference signal and the quadrature-phase reference signal
according to the DC offset of the quadrature-phase baseband signal;
wherein measuring the DC offset of the quadrature-phase baseband signal
10 comprises:
adding the quadrature-phase baseband signal and a feedback signal to produce an
added value;
delaying the added value by a predetermined time; and
multiplying the delayed added value by a predetermined coefficient to produce the
15 feedback signal.
12. (Original) The method of claim 11, further comprising locking the quadrature-phase
reference signal and the in-phase reference signal to a selected channel in an
Advanced Television Systems Committee (ATSC) digital television (DTV) receiver.
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13. (Original) The method of claim 11, wherein the quadrature-phase reference signal is
the in-phase reference signal phase-delayed by ninety degrees.
14. (Original) The method of claim 11, wherein the incoming signal corresponds to a
25 received vestigial sideband (VSB) signal.
15. (Original) The method of claim 14, wherein the DC offset of the quadrature-phase
baseband signal is caused by to a pilot tone of the VSB signal for a selected carrier.

16. (Original) The method of claim 11, further comprising generating the in-phase reference signal and the quadrature-phase reference signal to minimize the DC offset of the quadrature-phase baseband signal.
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17. (Original) The method of claim 11, further comprising filtering out a high frequency term of the quadrature-phase baseband signal.
18. (Original) The method of claim 11, further comprising filtering out a high frequency
10 term of the in-phase baseband signal.
19. (Canceled)
20. (Previously Presented) The method of claim 11, wherein the predetermined
15 coefficient is a value less than one.